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VOL. XVI OCTOBER, 1929 No. 10

EDITORIAL

As electro-platers our business requires us to fight corrosion of metals and we spend many hours in practice of this research and much money.

Yet, as men, we never stop to consider that if corrosion takes such a prominent part in our industrial life is there "a human corrosion taking place in our minds and bodies?"

Do we appreciate the knowledge we are getting from research, as we used to, when we were keenly prosecuting the investigations that lead us up to our present positions; or have we just corroded with conceit as to our superior knowledge and become a body of dreamers and theorists, who do not practically apply results of investigations, but just sarcastically criticize from our exalted ideas and ego?

In our daily work we have many opportunities to be helpful to our research associates and to reap many new thoughts if we would condescend to at least familiarize ourselves with the results of their work. Try and practice some of them and report our findings to either our branch or the research committee, which will be of real interest and help, right up-to-date and of a real reference value of a permanent nature and a *sure prevention* of *human corrosion.*

"LOOKING FORWARD IN THE ELECTRO-PLATING INDUSTRY"

Mr. Charles Proctor of New York Branch, Founder of American Electro-Platers Society

I think I still retain the key of this city that was presented to us eleven years ago. I have carried it with me for many years, and I still believe that that key is still with me that unlocks many of the doors in this city.

As you notice by the program, I am going to talk to you about "Looking Forward in the Electro-plating Industry." Some thoughts I may express may sound a little bit out of the ordinary, perhaps, but still, in my estimation, it is a part of the future of this great organization.

More than a decade has passed away since this great city of Detroit invited our Association to hold its sixth annual convention here, and I believe that I voice the sentiment of every person present here today when I state we are glad to come to Detroit again to hold our Seventeenth Annual Convention, to enjoy its hospitality, to marvel at its wonderful growth in a decade and during our stay to look forward towards another decade in the growth of our Society which must of necessity result, in order to keep step with the great advances that have been made in the electro-depostion of metals in this great and marvelous city and will continue so in the coming years.

Our votaries and guests have come from the north, the south, the east and the west and from our great neighbor to the north, the Dominion of Canada, all have come for that one express purpose, to make this Seventeenth Annual Convention a memorable one in the history of the Society and lay plans for its future and the continuation of the work started twenty years ago. As the founder of the Society the milestones that we have passed by during those twenty years have to me been glorious ones and although they are but memories in the infinity of time in their passing, they have made our glorious country greater than we ever dreamed of and our Society greater than its forebears ever could scarcely conceive.

We keep "Looking forward" to greater possibilities as all great organizations must do that are so welded in the commercial great-

ness of these United States and its future prosperity. Theory is only of value when it becomes the hand-maiden of practice, when they become welded into a great universal unit of production on an economic scale of great magnitude, such as it is possible to behold in this remarkable city of Detroit with its great manufacturing plants.

"Knowledge is Power," is the motto of our Society, but learning is only valuable when it means actual knowledge, and knowing is only valuable when it means doing, creating, adding to the possessions of the efficiency of men, to the great uplift of your Society and its future.

Members of our Society have had visions that others could actually do its work for them; they have created by their efforts fairly large sums of money to be expended in the exploitation of theory, which every member of the Society possesses himself, but stil the years pass on and the results of the labor of theory, without putting it to work in actual practice has, in my opinion, proved negligible and of no commercial value to the industry. Especially is this true in this great commercial city of Detroit.

The tremendous production in the automobile industry in this city and its environs does not depend upon theory, it depends upon practical, commercial, economic results, as all other branches of industry must do if they continue to exist in this age of competitive production.

I believe it was Henry Ford who is responsible for the statement that if the great industrial plants were operated upon the same basic plans as the United States Government they could have never continued to exist. To dream dreams and see visions is admirable if you make the dreams come true; if you translate the visions into stone, marble, iron and glass you accomplish a purpose. But to dream and see visions and then pass away like one of the dreams, leaving nothing behind that is worth while, whatever amount of learning or knowledge you may have absorbed into your brains, even as a sponge absorbs water that can be removed with little pressure, is of no value to industry.

We are still waiting to learn all about chromium plating from Washington, D. C. We still possess the theory. We are still awaiting the solution of the problem of spotting-out copper, bronze and brass plated ferrous and non-ferrous metal goods. We are still anxious to know why articles made from sheet copper, bronze

and brass "spot out" when lacquered when they have never gazed into plating solutions or bathed themselves in an alkaline or acid bath. We may know in a few years if we wait patiently, but in the meantime we might arrange to have our compressed air tanks made from copper and heavily coated inside with block tin so there would be no danger of iron rust forming in the compressed air tanks due to exposed iron which is acted upon chemically by moisture and the acetic acid the lacquers may contain, which causes brownish red spots when articles are sprayed with lacquer contaminated with iron acetate which is precipitated in the final drying operation as the solvent is evaporated upon the finished plated surface by heat.

It might be advisable for the great automobile plants of Detroit to open wide their doors so that our research associates in Washington might enter in and learn how to chromium plate on a tremendous commercial productive and economic scale and they would then throw all their theories to the winds because they would be able to observe results in mass production, the great important factor in the race for commercial supremacy.

The combination exploited theory and practice of spotting out of copper, brass and bronze plated iron and steel can, I feel sure, be eliminated if we visualize correctly the true cause of the spotting out, realize that the spot is due to chemical action of the impregnated plating solution in the pore that absorbs moisture from the humid atmosphere surrounding the porous spot and acts as an oxidizing agent. When the pore becomes filled with absorbed atmospheric moisture it overflows and oxidizes the metal deposit surrounding the port or hole which we so commonly term "spotting out" which is so disastrous from a financial standpoint in the electro-plating industry.

Have you ever given serious consideration to the value of commercial phosphoric acid when used as a neutralizing factor for the cyanides and the metal cyanides and the free alkalies that are occluded in the pore or minute pin hole in the basic metal? We all know the value of ferric phosphate when applied to steel or iron by the boiling process based on the Coslett patent and a well known rust proofing process for iron and steel exploited in your city of Detroit.

Is it not possible? I believe it is because in a measure I have proved it that an aqueous solution of commercial phospheric acid

approximating three fluid ounces per gallon of water heated to 200 degrees Fahr. may solve the spotting problem. Surely the cyanides occluded in the pores of the basic metal would become neutralized by absorption of the dilute hot phosphoric acid solution and due to expansion of the metal when immersed in the solution at 200 degrees Fahr. direct from the cold rinsing waters after plating. The time of immersion to be determined by actual tests of the plated product. I have seen copper and brass plated cast iron immersed in such a solution for an hour without any detrimental influence upon the deposits.

If ferric phosphate protects iron and steel from rusting, then it is logical to presume that after the cyanides have become neutralized in the porous spot or pin hole and ferric phoshate remained, the inside of the spot would become rust proof and even if moisture was absorbed later through the lacquer coating during the excessive humidity of summer, no spotting would result because no oxidizing factors would be left behind after the treatment to cause an oxidized spot, surrounding the porous spot or hole, if you so desire to term it, in the basic metal by atmospheric moisture absorption.

Possibly these suggestions may be worth while. Try them out and then make your reports upon your success or failure to the Supreme Editor so the data can be printed in the Monthly Bulletin.

We have all come to this Seventeenth Annual Convention in this city of Detroit to work and to play. To work for the up-bulding of the Society, to look forward into the future possibilities of the Society and to the electro-plating industry as a whole, and when you come to consider its future in your deliberations as delegates and representatives of your respective branches, give serious thought to the Society doing its own research work. Here in this city of Detroit, establish a working research division for the benefit of our entire electro-plating industry and for the benefit of the entire membership. You will find willing hands and financial assistance to help the cause along.

Your constitution is so written that this work is a part of it. Let us go and do what we should have done years ago. Do not let any member betray its principles for self aggrandizement or for the benefit of any other society or organization. Be steadfast, hold on to its principles, or go down in defeat.

If you can visualize clearly you will see that this is being done

to the detriment of our Society, which is a practical society of practical men. May your time spent in Detroit at this annual convention be of great benefit to you all. Profit and pleasure combined in unlimited measure, and it is my sincerest wish that you will all be fully repaid for your attendance at this, the Seventeenth Convention of the Society.

Let us all have faith in the future of the Society. There will be many hands eager to retard its progress, yet those who have faith, who believe that right is right, will triumph. If we stick to the principles and ideals of the Society, we shall always win; though the thunder of misunderstanding may crash above and the lightning of malice blind us now and then, we shall win all that is worth while as a great industrial and educational society and shall accomplish in fact the principles inculcated in its constitution.

Hold on, become your own master of your profession. Master the fundamental principles of chemistry only so far as necessary to be able to make a true analysis of your solutions. You do not have to be a graduate chemist to accomplish your purpose. You do not require any knowledge of organic chemistry to analyze a plating solution. Under a competent instruction you can learn in two weeks all that you want to know about the analyses of plating solutions. Better still an instructor that has made a study of electro chemistry. In your spare moments study the engineering part of your profession, how to do things mechanically and control the operations by electrical control. Study from the knowledge you possess from years of practical application the improvement of your plating solutions, the maximum metal content that can be safely carried and the maximum current densities permissible in electro-plating defined surface areas as single units or per tank load and the minimum expired time permissible to give you standard deposits. When you know thoroughly these fundamental factors you have traveled a long way in looking forward in the electro-plating industry. A graduate chemist or metallurgist must learn control of solutions under intensive production even as you have done by years of practical application as a plater, before chemical control became such an important factor.

There is nothing extraordinarily new in the art of electro-plating in this great city of Detroit so far as the deposition of copper and nickel is concerned, as the basic factors for a rust proof and finished metal surface on steel, satisfactory for a final deposit of

chromium as we see such products today. The basic factors were used more than forty years ago, but the metal concentration of the solution has, however, been greatly increased so that current densities are permissible at least twenty times greater than even ten years ago.

The control of the hydrogen factor in the deposition of copper and nickel has made these great changes in the rate of metal deposition possible. When you have learned from observation the intensive results accomplished in electro-plating, as I trust you may do before leaving Detroit, you will then understand and realize the reason why that in all the world there is no other city like Detroit that can possibly produce similar results in the electro-plating of nickel, copper and chromium, especially on such an intensive productive scale as is now done. But still such results are only in part what a successful master plater should know and what has been acquired by men that have made a complete study of the art in all its details. And then when your work is accomplished and you return to your homes again you should be proud of an art that has a history that goes back more than a century. And you as practical platers have carried on the work through the passing years and made the art what it is today. Looking forward to its future is still with you. You are its masters.

Its destiny remains with you. The society grows in numbers and continually it extends in membership, now numbering one thousand three hundred and has established branches from east to west from Boston, Mass., on the Atlantic Coast to Los Angeles, Cal., on the Pacific Coast, and it will continue to grow in number if we co-operate one with each other for its welfare. Co-operation is the great big factor in this modern world and if we continue to co-operate, work in unity and harmony for the upbuilding of the Society, then you will have earned a just and great reward. You will then be a true and loyal member of the American Electro-Platers' Society and all that it represents in these United States.

"EXECUTIVE FOREMANSHIP"

J. M. Carmody

I am inclined to think that if those of us that have been interested in incentive plans the last twenty-five years get our heads together, almost any reasonable question that might arise can be

answered—not by myself, but by some of the fellows whom I see around me. I feel quite sure that we can do it.

Some few evenings ago, a policeman on the corner of Fifth Avenue and 42nd Street saw a naked man running up the street, and he hollered at him, saying, "What's your name?" "My name is MacDougall." "And where are you going?" asked the policeman. He replied, "I'm going to a strip poker party."

(Mr. Carmody removes his coat. Laughter.)

Well, Mr. Chairman and Friends, in my judgment it was too bad to interrupt the discussion that was under way for anything that I might be able to say to you. My speech is not very long; it is a hot night, and I enjoy speaking to you even as little, perhaps, as you enjoy listening to me. However, some of the questions that arose struck me as indicating the necessity for the very kind of meeting we have here tonight.

My subject, as I understand it, is that of "Executive Foremanship." The kind of responsibility that a foreman has, depends, of course, on the size of the plant, on the character of the product, and, as these Westinghouse men have said, on the company's standards. And you only have to look about you, you only have to look in store windows, you only have to examine the commonplace things that you pick up and pay for day by day, to realize that we are a long, long way from any sort of standard in our quality of production in this country.

Now the foreman can't set the standards; the foreman can only attempt to produce, with the men he has, and with the wages he is permitted to pay, the standards that his organization says it is necessary to deliver to the cusomer in order that the salesman may not be ashamed to make another call. The standards are set as far up in the organization as there is character in the organization. If you have got a fourflusher at the top, your standards will wiggle and woggle. (Applause.) If the man at the top of your institution is a man of character, who himself believes in telling the customer what he will get, and then insisting on his organization producing it, you will get that production, because that kind of man has guts enough to talk to a board of directors, if necessary, about quality standards.

Now all men aren't built that way. A great deal of business is done on the temporizing basis. "Let's get by. Let's produce what will enable us to stay in business." I don't know whether I can be of any help to you at all, without saying that we have to keep those things in mind.

Let us think for a moment what it means to be an executive foreman in an organization that believes in quality standards. An organization that believes in quality standards, in my judgment, believes in treating the men who are employed by that company right, as nearly right as they know how to do it. How many of us know what is right? We come as near to it as we can, but there are standards of right even among people who say they are right.

There is a very good story in a recent issue of either the Atlantic Monthly or Mercury (I have forgotten which) about this old lady Stevens, who ran the community she lived in, and her father ran the community before her, and she had ideas of carrying on that tradition as long as the family should live. The tradition was broken by an experience that it is worth any man's while to look at if he is dealing with human beings.

Well, a foreman, assuming that there are some standards in the organization, and assuming that you say that you need foremen, it seems to me that a foreman first of all must have some qualities of leadership. And I don't believe that anybody can be a successful leader unless he is at least reasonably unselfish. And if he is reasonably unselfish, then he will be reasonably generous. And when I say "generous," I mean generous in his attitude toward the men who work for him.

A man who possesses leadership possesses courage. Not only courage to fire some poor fellow who can scarcely defend himself, but courage properly to represent that man's idea to the man above, whether he be superintendent, general suprintendent, factory manager, president of the company, or what not.

Just those things alone, those responsibilities alone, throw a very considerable burden on a man who pretends to be an executive foreman.

Now other things are required of him. He must be a teacher, as was pointed out by both men who read papers here tonight, papers that were carefully prepared, as mine has not been. He must be a teacher. He ought to know at least the fundamentals of the job. He ought to be helpful to new men who come in, and he ought to be helpful to men who have been on the job for some time and who for some reason or another may not be doing the best they can possibly do. He has to do all of that. Not only should he be a teacher in the technique of his job, but in my opinion he should be a teacher in the mode of conduct that will help

the men to get the best results from the time they put their feet inside the plant. After all, those of us that started to work some thirty years ago, when we worked twelve hours a day, and gradually saw the time stepped down to eleven, and ten and nine and three-quarters and nine and a half, and eight, and so on and so forth, realize that after all, we spend a very considerable part of our time in the shop, under the direction of some foreman or some superintendent, or some factory manager, or what not,—more time there than we spend in our own home with our families. We certainly spent more time when I started to work, and we still spend, I think, perhaps more time on the whole.

Another thing that the modern foreman is required to do, even beyond the foreman of thirty years ago, he must have an open mind. After all, science has made tremendous strides in the last few years, and there is scarcely a discovery, either in pure science or in applied science, that doesn't soon find its application right down to our own job. After all, the strange thing about it is that it takes so long for some of these things to come through. For instance, this electrical control that is reaching perfection, has been very, very slow. Now whether the difficulty is with us, who had not the minds to accept and to apply it, or with the engineers who didn't think fast enough, or work hard enough to force control through to us, I don't know. But when we remember that the little electric light is fifty years old, celebrating its golden jubilee this year, the development has been comparatively slow.

And so it is in chemistry. It has been slower than it should have been. I think that is due practically to the fact that those of us that can help in the application of these new ideas did not receive them with sufficiently open minds. We have been too prone to resist the new ideas as they have come along.

I spent three years in the coal mining regions of West Virginia, ending that period about three or four years ago. There were cases in the community in which I lived where men, born in the mountains, left their wives because their wives had their hair bobbed. Now we think that is strange; we think that is peculiar. But to those men it wasn't peculiar at all. The women got the idea faster than the men. The men resisted; they had no other way out. They couldn't beat their wives because there was some sign of justice, but they left their wives. But after all, they were no more narrow minded than those of us who, not comprehending some of

the scientific productions of the day, say, "It can't be true," or "It won't work."

The same thing is true to a degree with various forms of wage incentives. This group incentive is not especially new; it is having a greater vogue at this moment than it has had for many, many years. But the group incentive is probably one of the oldest incentives in our human experience. After all, we are less than three hundred years from a period where all production was carried on under what might be called domestic economy. Almost universally, the things that a family needed were produced by the family as a whole. The exceptions required exchange with other families on the basis of barter. Out of that relationship, there grew up for instance in Europe, such fairs as the Leipzig Fair, which carries on to this day. In fact, throughout the continent of Europe, those men who have come from Europe, or are from European ancestry, realize this situation. Throughout Europe the fair, today, is the market place, the bartering place, for a great many products.

And I can believe that there never was a more cohesive group economy than that of a particular family. I can visualize it clearly, because I was born on a farm. I recall very vividly the fact that not only did we raise our own sheep and shear them and scour the wool, but my grandmother carded the wool and skeined the yarn and wove the cloth that we wore. Even in my own time, in a hill farm in Pennsylvania. Now that was as close to that European economy as we could come; it was as close to this group incentive that these men are talking about as we need to get for an example of what incentives will drive men on.

We have it again in baseball. Where is there a finer example of group incentive than in baseball itself? While each man has a specific job, if you take the amateur teams, the teams on which you and I played as boys, no man ever refused to back up another man if he was in the spirit of the game. He went any place that he might go. And some of that amateur spirit carries on today, even in the professional baseball field that has become so highly commercialized that the play spirit has almost been completely eliminated from it. I can recall Red Dugan, when he was catching for Philadelphia, going down to third base regularly to take a throw there. And I never failed to see Steve O'Neill, when he was catching for Cleveland, cover first base, and he was

a rather heavy fellow to do it, but he was down there. Why? Because of the group incentive, the group spirit, playing for that particular team as against some other team.

I am afraid I have said nothing to you that will help you in your deliberations. We have heard about material control. We have heard about the necessity for setting up standards. I have had enough experience in research to appreciate the necessity for that. I spent many years in time study work on production, and I can appreciate the work that these men have done in trying to set up some specific standards of production, and some quality standards that would be sufficiently or reasonably attainable,—so attainable, in fact, that men were sure, with the right kind of effort, always to surmount the standard. That is the only kind of standard that will get real results, so far as I know. As a matter of fact, that probably is the reason why the Taylor task method has died out in our modern enterprises. Those of you that recall the work of Fred Taylor remember that more than forty-five years ago, he started talking about and writing about incentives based on time studies that were accurately taken. And even the men who succeeded him, some of them, never got beyond the setting of tasks for specific individuals. It was only when Harrington Emerson and Frank Galbraith came along and some men with just a slightly different vision, that they began to appreciate the necessity for setting up standards that would bring the group action together.

I believe, as I look back over my own experience and as I look out through factories that I visit week after week, from the Canadian border to the Gulf of Mexico, and from the Atlantic out beyond the Mississippi, I question whether we still have the guts and the brains to set up the right kind of incentives, incentives that will get men to do their utmost and stay there. If we do it the chances are ten to one that somebody will come along and shave off a penny or two pennies or five or fifteen, within six months, destroying again all the good work, all the co-operation, all the encouragement that these men got.

I got a very interesting example of that some twelve years ago. I happened at that time to be Chairman of a production managers' group in the city of Cleveland. We had between 100 and 150 men, from almost all the industries in the city. We met once a month. We traded experiences, and all of us learned from the others. But

one fellow told me how he got production without a financial incentive at all, and this was what he did. He was assembling batteries. The regular hours were from seven to five. And he realized that several fellows, during the week, two, three, four or more, on Tuesday, laid off and went to the ball game. Then he talked to them about it, and they said, well, they didn't always get a good seat on Saturday as they wanted, Saturday was a big day, and there were big crowds, and they liked the game so well that they would go occasionally anyway, even though they had to pay for it. He said, "I'll tell you what I'll do. You fellows are now getting through at five o'clock; you are making such and such a production. During the summer, while the team is home, every man who has his normal day's production cleared up at two o'clock is through." What happened? Within three days, every man was through at two o'clock, and had his full production.

Now that is the kind of incentive that we haven't the guts to apply all the time, you see. One might say of that fellow that he was a rotten production man, that his time studies were bad, and so on and so forth. I don't think so. I think he was normal. I don't think he was any worse than the rest of us, not a bit.

I had an experience of that sort myself. We had a slack season. We had to face the problem either of laying off the whole crew, part of the crew, or reducing the hours. We were working eight hours a day. We reduced the hours to six. We reduced the hours to five. And in the five hours we not only got eight hours' production; we got nine, based on standards that had been set by fellows who had been setting standards for a good many years in that one industry. It is just one of those things that happen.

I will tell you one more thing, and then I'm through. In 1913, I went to Cuba to take charge of a plant. I was a good deal younger than I am now, and had a great deal less experience, although I didn't think so; in fact, I thought then that I knew a great deal. It wasn't an easy job. Almost everybody in the plant spoke Spanish and I spoke none. We had three or four Americans who spoke English, and some of them spoke a little Spanish, but for the most part they had been there longer than I had and wondered why the hell I came, and in one or two cases they had been promised the job anyway, and I couldn't blame them for not co-operating. But at any rate, I pitched in, like any young fellow will do, three thousand miles away from home without a

ticket back, and tried to increase production, tried to straighten up the plant, the yard, and so on and so forth, and to do it we worked from seven in the morning until half past five or six at night, seven days a week, for about four weeks—and Sunday work isn't very common down there. There weren't many places for an American to go except on Sunday, and I should have been going. I was pretty tired. My chief, who had preceded me, but had been promoted to general superintendent, was away on a two weeks' vacation. When he came back, he looked around and asked me about one or two things, and there was something that was buried and we didn't get it out. We were walking over the town. He said, "Well, how are you getting along with so and so?" And I said, "George, we are doing the best we can." He said, "I will tell you something." (He was about my age, too.) He said, "I will tell you something, Jack. No man is ever doing the best he can." God! I was as hot as could be. If he hadn't been six inches taller and weighed forty pounds more, we would have fought. But I am glad we didn't. He was right. When I got home and thought it over I saw he was right. The reason he had a better job than I had with that organization (he had been there seven years and went there a perfect stranger just as I did) and got along, was because he had more brains, more sense, he had a better and a sounder philosophy—he had a harder philosophy for himself. Most of us are hard-boiled with other people but not very hard-boiled with ourselves. He was hard-boiled with himself. He worked like that, and he helped me a whole lot. I don't think that any single thing that happened to me in Cuba (and I was there a long time) did me as much good as to have George Wall say to me, "Jack, no man is ever doing the best he can."

I would like to see the fellow that was dissatisfied with the answer to come back to these Westinghouse fellows and let them clear it up. I think they can. Maybe I have got too much confidence in them; I don't think so.

(Applause.)

CHAIRMAN KENNEDY: I am glad Mr. Carmody said what he did, and he brought home to us some very vital facts we have seldom heard in a convention like this, and I think that I voice the sentiments of every delegate here when I say that we appreciate everything he said.

"WAGE INCENTIVES AS APPLIED TO ELECTRO-PLATING"

A. L. Matthes

In writing this paper, I have attempted to confine it strictly to electro-plating, but with some modification it can be applied to other manufacturing operations.

A large part of the present prosperity of American industry is due to the successful reduction in manufacturing costs by the use of labor saving machinery, more efficient methods of manufacturing and the introduction of wage incentive plans. Wage incentives are recognized as one of the most important elements in present day manufacturing and pay large dividends on every dollar invested in them. Many of the larger industrial organizations have established departments manned by highly skilled Time Study and Industrial Engineers who devote their entire time to the study and installation of wage incentive plans and the development of more efficient methods of manufacturing. It is an economic necessity that we have some form of measuring human effort. There are many kinds of wage incentive plans being used successfully, some of which are better adapted to one kind of manufacturing than others, because of the great difference in manufacturing and labor conditions.

There are basically two kinds of incentives—individual and group. Individual incentives should be applied to operations that are self-contained, and where there is no group or department interest in the article being produced. Group incentives are applied to operations that are dependent on one another and where there is a group interest in the article being produced, such as in the plating department.

The main object of the employer is to secure the maximum output of standard quality at a minimum cost per unit. In the final analysis, the cost per unit is the measuring stick used to judge the foreman electro-plater; therefore, it is not only necessary that you have smooth working cleaning and plating solutions, but also a well organized, satisfied and efficient working department. One of the most valuable aids to the foreman electro-plater in maintaining a low cost in his department is the use of group wage incentives.

When installing a plan of this kind in a plating department it becomes necessary,

1st. To standardize plating racks and secure enough of these racks to handle the desired production. Racks that are used under an incentive plan are often improved by the operators where they see it is possible to increase the quantity and still maintain the quality of work, thereby increasing their earnings.

2nd. To standardize the cleaning operation and the strength of the various cleaners to form a balanced labor cycle with the rest of the plating operations.

3rd. A standard plating solution and method of control must be developed so that definite plating periods can be established for the various parts to be plated.

4th. Methods of rinsing, drying, unracking and packing must also be standardized so that the most efficient labor cycles can be determined.

The advantages of a plan of this kind when applied in a plating department are:

1st. It unifies the purpose of all employees in the group, making each man interested in the other man's output and quality.

2nd. The plan eliminates loafers, as it makes them very unpopular with the group.

3rd. The brighter and more experienced workers share their knowledge with the newer workmen, in this way increasing the general efficiency of the group.

4th. Production and the size of the group are more carefully watched as excess men reduce the earnings of the group.

5th. Less inspection and supervision is required, because a group of this kind becomes self-supervising to a great extent.

In addition to a Quantity Incentive, a Quality Incentive can be used to great advantage in keeping the rejects to a minimum.

A quality incentive can be paid as a per cent of the quantity or productive incentive, based on the reduction in rejects, permitting 10 per cent rejects as a base, and for each 1 per cent reduction 5 per cent of the productive incentive will be paid.

Per cent of rejects.....	10	9	8	7	6	5	4	3	2	1
Per cent of quality incentive...	5	10	15	20	25	30	35	40	45	50

Example: If the productive incentive would be 25 per cent and the rejects at 7 per cent, then 20 per cent of 25 per cent productive incentive equals 5 per cent, which is to be added to the productive

incentive, making a total of 30 per cent incentive. The quality incentive being paid as a per cent of the productive, cannot be paid unless a productive incentive is earned.

In determining the amount of quality incentive to pay the workman, it will be necessary first to determine the value of the rejects, basing the incentive on this value.

In case the inefficiency of a new employee tends to penalize the group, additional time should be allowed until the operator meets the required standard. During this instruction period, the employee should receive only his day rate.

Under the group system, the employees are paid different hourly rates, according to their ability, knowledge, and value to the company. Therefore, it will require great care on the part of the foreman in establishing the different hourly rates of the operators in the group.

Groups of this kind can be established in practically any plating department, and will require few changes in the cost and time-keeping systems.

Wage incentive plans are no better than their supervisors, and cannot be a success unless the foreman is sold on the idea, and is willing to help put it across.

Ordinarily, operators are not interested in the system. What interests them most is what is in their pay envelope in addition to their day work earnings, regardless of who figures it, or how it is figured. It is an acknowledged fact that light work, ordinary shop practice, resulting in no special fatigue, should have an incentive of 25 per cent to 35 per cent over their day rate, regardless of the system or the method of figuring it. Skilled labor calling for severe bodily exertion and strength, with resulting fatigue, requires an incentive of 35 per cent to 50 per cent to secure the best results.

It is not advisable to set individual time limits for each operation in the plating cycle such as racking, cleaning, plating, unracking, packing, etc., as each of these operations is usually worked by a different operator whose chief aim would then be to turn out as much work that day as possible, regardless of the other operators, or the fact that work may have to remain several hours between operations before it can be plated or put away.

Where this condition exists, it can be easily overcome by organizing a group with a group leader who is held directly responsible to the foreman for the functioning of the group, and maintaining

of quality and quantity of work. He should plan the work to be run in the various tanks, and see that the proper amount of metal has been deposited. He should see that work does not accumulate between operations while plating, by shifting operators from one operation to another whenever necessary to maintain a balanced flow of production. In this way there will be little unfinished work left over at the end of the day. It is, of course, absolutely necessary that there be the best of co-operation among the men in the plating group. A group of this kind will require a very small part of the foreman's time, and will operate with surprising results.

The following write-up describes a plating group and the method of setting time limits, which has been in successful operation for a number of years.

PLATING DEPARTMENT B-13

Revised April 28, 1929

Duties of Group: This group is to function one operator working with another to complete all the operations as specified on specification charts, to make a finished product and deliver it to Buffing Department.

This group is to operate two moving cathode plating tanks, one still nickel plating tank, one cyanide copper strike tank, and one acid copper plating tank.

This group is composed of a working group leader and a sufficient number of operators to meet the desired production schedule.

This group will be paid on the bonus plan and in addition to the productive bonus, a quality bonus for reducing defective work is offered.

Productive Bonus: Time limit to be allowed per one hundred pieces for copper and nickel plating.

Time limits are determined from the attached formulas on copper and nickel plating.

Quality Bonus: In addition to the productive bonus, the operators are offered a quality bonus based on the reduction in the percentage of rejects (all causes included). As there is no inspection between the plating and buffing operations, the rejects will be determined from buffed copper and nickel inspection reports.

Starting at 8 per cent a bonus of 5 per cent for each 1 per cent reduction in rejects will be paid. Incentive is increased to 10 per cent for each 1 per cent reduction at 5 per cent.

Per Cent Rejects	8	7	6	5	4	3	2	1
Per Cent Quality Bonus	5	10	15	25	35	45	55	65

This percentage will be taken as a percentage of the productive bonus and added to it.

Duties of Operators

Group Leader's Duties: The group leader will be held directly responsible to the foreman for the functioning of the group and the maintaining of quality and quantity of work. He is to plan the work to be run in the various tanks and check each run to see that the proper amount of copper and nickel has been deposited.

Rackers' Duties: Clean all parts in kerosene and sawdust, rack all parts for moving cathode and still nickel tanks, copper plating tanks and place all racks aside on storage hanger.

Cleaners' Duties: Clean all parts in the soap and electric cleaner and store them in the cold water storage tank. During the time he is not working on the soap and electric cleaner he is to assist in racking and unracking.

Platers' Duties: Load and unload the moving nickel, still nickel tanks and copper plating tanks. During the time he is not working on the plating tanks he is to assist in racking and unracking.

Unrackers' Duties: Unrack all copper and nickel plated parts and place them on elevator. Remove copper buffed parts from elevator and place them in Plating Department store room.

I

PLATING GROUP NO. 723

Time Study Procedure

With the exception of basket plated parts, all work in this group must be racked and run through a standard plating cycle. Standard times have been determined for all operations except cleaning in coal oil and sawdust, racking and unracking; these operations should be studied for each new style. The standard times listed below should be used for all other operations.

Operation	*Standard Flat Time Dec. Hours*
A. Secure box of material and place on racking bench ..... Divide .0100 by the number of pieces in a box to get the time per piece.	.0100 per box
B. Secure racks from storage and place on racking hanger ..... Divide .0090 by the number of pieces per rack multiplied by ten to get the time per piece.	.0090 per 10 racks

C. Place two racks in position for racking.... .0015 per 2 racks
Divide .0015 by the number of pieces per rack multiplied by two to get the time per piece.

D. Place parts on two racks..... (Take time study)
A time study should be taken on this operation for each new part. The flat time varies according to the size of the part, size of rack hole, kind of rack required, etc. (All this information should appear in detail on the time study for future comparison.)

E. Place two racks aside ready for plating cycle ..... .0030 per 2 racks
Divide .0030 by the number of pieces per rack multiplied by two to get the time per piece.

F. Place empty box aside..... .0050 per box
Divide .0050 by the number of pieces in a box to get the time per piece.

G. Standard Plating Cycle
I—For all parts nickel plated in moving cathode tank ..... .0270 per 2 racks
II—For all parts nickel plated in still nickel tank ..... .0350 per 2 racks
III—For all parts copper plated..... .0420 per 2 racks
When using any of the above cycles, divide the flat time by the number of pieces per rack multiplied by two to get the time per piece.
(Refer to Formula No. 3037 for details on these plating cycles.)

H. Secure empty box and place on unracking bench ..... .0030 per box
Divide .0030 by the number of pieces in a box to get the time per piece.

I. Unrack complete ..... (Take time study)
The variations on this operation are the same as explained for operation "D" and time studies should be taken on all styles.

SPECIAL NOTE: The minimum selected time for the number of racks per rod on the drying conveyor should be .0063 as

this is the maximum speed per rod of the conveyor; i. e.—No matter how fast the operator works he can not unrack any more than comes to him over the conveyor.

Operation	*Standard Flat Time Decimal Hours*
J. Place racks aside to storage..... Divide .0070 by the number of pieces per rack multiplied by ten to get the time per piece.	.0070 per 10 racks
K. Place box aside to elevator..... Divide .0050 by the number of pieces in a box to get the time per piece.	.0050 per box

NOTE: If parts are to be cleaned in coal oil and sawdust, the cleaning operations must be timed and included in the rate. Detailed information as to cleaning methods, condition of parts, etc., should appear on time study for future reference and comparison.

REMARKS—Judgment must be used when choosing the selected flat time for all operations that have not been covered by standards. The time study man should keep in mind that an average man, exerting an average amount of effort is expected to earn a productive bonus of 25 per cent and, therefore, when time studies are taken when men of long experience and advanced skill are giving a good performance, readings that are high enough to make this bonus possible should be selected.

ALLOWANCES—*Eight per cent personal allowance*—This allowance totals 40 minutes per day for each man in the group and is sufficient to cover rest periods, changing from boots to shoes, etc.

Nine per cent unavoidable lost time allowance—Added to cover the following work and is based on 4 men working a total of 36 hours per day.

Skim nickel and copper tanks	20 minutes per day
Clean rods on still tanks	12 minutes per day
Clean conveyor tracks	30 minutes per day
Clean hooks on moving tanks	24 minutes per day
Change sawdust and make general clean-up	35 minutes per day
Group leader's reports and consultations	25 minutes per day
Cut paper for packing	25 minutes per day
Clip tips off "built up" rack arms	25 minutes per day

PLATING CYCLES FOR GROUP NO. 723

Operation	*Standard Flat Time*
I. *Moving Cathode Tank Nickel Plating Cycle.*	
A. Remove two racks from storage hanger and place in soap tank	.0025
*B. Remove two racks from soap tank, rinse in cold water, dip in cyanide and place in electric cleaner	.0054
C. Remove two racks from electric cleaner and place in cold water storage tank	.0030
D. Walk back to storage hanger	.0020
E. Remove two racks from cold water storage and place in nickel tank. Then remove two racks from nickel tank and place in cold water storage tank	.0079
F. Remove two racks from cold water storage tank and place on drying conveyor rod	.0062
**Refer to Special Note.* TOTAL	.0270

II. *Still Tank Nickel Plating Cycle.*

The cycle for nickel plating in the still tank is exactly the same as described for the moving cathode tanks except that operations "E" and "F" are .0095 and .0082 respectively, changing the total to .0306. To this total is added an extra 15 per cent allowance to cover relieving bubbles, making a total standard flat time of .0350 for still nickel plating.

III. *Copper Plating (Still Tank).*

Operation	*Standard Flat Time*
A. Remove two racks from storage hanger and place in soap cleaner	.0025
B. Remove two racks from soap cleaner, rinse in cold water and place in pickle	.0040
C. Remove two racks from pickle, rinse in cold water and place in electric cleaner	.0040
D. Remove two racks from electric cleaner, rinse in cold water and place in cyanide copper	.0064
E. Remove two racks from cyanide copper, rinse in cold water and place in acid copper	.0064
F. Remove two racks from acid copper, rinse in	

cold water, dip in fish oil and place in storage tank	.0125
G. Remove two racks from cold water storage and place on drying conveyor	.0062
TOTAL	.0420

REMARKS—See Formula No. 3036 for application of these standard times.

....

Approved Rate Department

SPECIAL NOTE—OPERATION "B", CYCLE I—This cycle of operations is the one used for buffed copper parts. When running raw steel, the racks are placed in a pickle tank instead of the cyanide tank, and when running polished steel parts neither pickle nor cyanide is required. There is not enough variation in the time required per piece for performing these different cycles to necessitate three different standards and therefore the "cyanide cycle," which requires an average amount of time, has been chosen as a standard for all nickel plated parts.

* * *

In conclusion, I would like to emphasize again that a group wage incentive plan will go a long way in helping the foreman electro-plater to standardize his department and produce a quality product at a minimum cost, which, after all, should be the aim of every electro-plater.

(Applause)

MR. J. HAY: I would like to ask the speaker if it is possible in the Westinghouse Company to get a greater loss than 5% in production.

MR. MATTHES: We use a 3% loss, plating around 35,000 irons a month, and as high as 50,000. And I think Mr. Van Derau will bear me out, he averaged for the year of 1928 around 3½%.

MR. HAY: I would like to say that I believe under the present day production methods if you lose 1% they are going to call you down for that. Now we plate on a production basis of 72,000 pieces a day. At 5% that would mean 3,600 pieces a day you lose. I believe a plater would lose his job at that rate.

MR. MATTHES: Are those buffed? Chromium plated?

MR. HAY: Yes; absolutely. And if you find 1% loss I would like to have you call me on it.

(Applause.)

MR. F. C. MESLE: I would like to ask the speaker what advantage there is in defining the particular work that any one member of the group should do?

MR. MATTHES: In that case, there is little confusion in the group. The group leader knows the duties of the various operators and the duties of the group and can so balance his time that each group, each operator, fits in in a balanced labor cycle, and when the work is ready to come out of the tank the next run has been racked up and is ready to go in. It balances along very smoothly. At the end of the day you will find everything cleaned up, and it starts off very nicely the next day. Without the duties of operators being defined it doesn't work out so well.

MR. MESLE: The reason I asked that question, we have been working on a piecework basis, as you outlined, for ten or twelve years, and we just say to a group, "Turn out so much work," and the result is that no man feels that any part of that work is his, and he don't wait, he just pitches in wherever there is work to do, whether it is at the plating tank or the unracking, or anywhere. He simply does work anywhere that work is to be done in the group to help get out the group production. That is why I asked the question. It seems to me it is a disadvantage to define the particular work any one member of the group should do when all they have to do is plate so many units per day's work.

MR. WOODMANSEE: I would like to ask a question. Suppose you were in a place where the foreman plater had no control over the rates that were set, and he knew that they were unfair. What should he do?

MR. MATTHES: I think in that case it is the duty of the foreman to do his best to help put it across, to make it at low cost.

MR. WOODMANSEE: How could he do it if the rate was unfair?

SECRETARY GEHLING: In this group plating, on this plan that you outlined, where a fellow at the plating tank goes over and helps rack up, have you ever found in that method difficulties on account of the wages or rate per hour of the different employes that you would employ in that group? For instance, in

the East, we find that we have to pay a certain class of work a certain figure. On hanging in the tank, we would probably pay 70c an hour, and for racking work and putting it on racks, we could get another class of help who would work just as efficiently and would work better, like a line of girls, in racking work, that we wouldn't have to pay more than 30c an hour. Now, how would that balance up when a 70c an hour man spends his time doing 30c an hour work?

MR. MATTHES: You don't have the 70c an hour man doing 30c an hour work. You vary the hourly rates in the group just the same as you speak of, and at the end of the day a group turns out so many hours' work. That is equal to a certain per cent of efficiency, and each group receives that percentage in addition to their day rate.

MR. GEHLING: But you did say the man spent his time when not hanging in work in the tank, in racking up.

MR. MATTHES: In this particular case that I refer to, in this plating group, that is the case. As the work is iron bottoms, the racks are so heavy that girls, as you referred to, couldn't handle them.

MR. ZADOWSKI: We have had this plan in our plant since the first of April, but not only in the plating—we have it in the plating, the buffing, and the lacquering departments. The girls for instance, on racking up and unracking, get 30c an hour. The boys that do the trucking, get 35c and 40c. Another class of work gets 50c, another 64c and another class 70c. And all that goes together, and the bonus is split up according to each one's wages.

Now then, as it used to be, when a man worked at buffing stuff to be lacquered, he would quit early enough so the girls would have time to finish lacquering the work that day. Now he does 35c work after he is through, so it helps the others. He probably takes a truck and brings work in or takes it to the conveyor for the other department. The man that is through plating at 3:30 (we quit at 4:30), he does some racking up. He is a 74c man. He does the girls' work for 30c, but it doesn't hurt him any and it helps the group.

QUESTION: Supposing the group earns less than the guaranteed day rate. What happens?

MR. ZADOWSKI: They are earning pro rata share less. The 74c man getting actually 72c and the 36c girls may only get 34c.

QUESTION: What happens to a group that is disorganized,

that is, supposing one operator falls out of there? You have to break in other help. Does the balance of the group have to suffer for that? What is its object, anyway? It does not seem sound to me, when you are running a group, organized for any productive work. I think that an efficient standard takes much better care of the whole proposition than that quarter of a second.

MR. MATTHES: I might say that for a number of years we have been using the group plan very successfully; we started with it on electro-plating in 1923. These groups are open to inspection at any time, and we would invite you to come down and look them over. We think that the group plan has advantages over an individual incentive or an individual plan in a plating department, because operations in a plating department are more or less dependent one on another, and there is a group interest in the article being produced, where with an individual incentive plan, the operations are more or less or should be self contained, and there should not be a group interest in the article being produced.

SAME QUESTIONER: Mr. Chairman, that still does not answer my question. Supposing two or three operators in that group quit on you suddenly. Does the balance suffer for that, and why should they suffer?

MR. MATTHES: The balance would not suffer, as the new men placed in the group to replace the men that quit would be paid on their day rate for a period of time or an instruction period, and after that time if they meet the required standard, they would be put in the regular pay with the rest of the group, and up until the time that they do meet the required standard, it would have to be left more or less up to the judgment of the foreman to allow additional time to equal that of an old employee. But that instruction period shouldn't possibly be more than one or two weeks. The advantages of the group plan in that case are the other employees will work with the newer employee, thereby increasing the group's efficiency quicker, and, of course, their own earnings. Does that answer your question?

QUESTIONER: Well, it is an ideal condition, that is all I have to say, but it has not worked out in practice.

MR. VAN DERAU: Gentlemen, the department that you are tearing apart is a department that is mine. Now I want to give you a few experiences there. Mr. Matthes has done wonderful work in the setting up of rates. Rates are a key that your employer judges you by, and when you permit an employee to con-

sistently fail to meet his limits, and if you sit in on those limits to see that they have been set fairly (and if you are running your department, you do see that they are set fairly) you will quickly see that that employee gets the kind of instruction that will bring him up to the standard of the older employee.

Now, in answer to Mr. Hays' question about the 1 per cent, I don't know how many style numbers Mr. Hay runs. I don't care. But I will tell you there are something like 20,000 style numbers that are run through the various departments. Now the man in charge of those departments prior to the time of putting in these incentive systems, had a rejection of 53 per cent. That was up to Westinghouse standards. Now rejections are governed a good deal by the kind of standards that your employer sets up for his product. Now let's see why we set it at 8 per cent. Before we set up that incentive we were running approximately 5 per cent. The cost of that to us was tremendous, and it was a case of doing the same job over day after day, of going out through the plating department, through the paint shop, through the lacquer department, or other departments where groups could perform satisfactorily and saying, "Don't do this"—"don't do that"—"don't put those two pieces together that way, you will scratch them, or you will nick them"—all those things that cause little minor defects that our inspection department would not pass. Now it was necessary to find some method that would appeal to those men that were turning out that job so that they would take and have an interest in the product that Westinghouse stood for.

Now Westinghouse is an organization known throughout the world for the kind of a standard in their products that they turn out. They are known as one of the largest engineering organizations in the world. For years they have been known as that, more so than commercial organizations.

Now, to be perfectly frank with you, when I went into the employ of the Westinghouse Company the thing that scared me off more than anything else was the kind of standards you had to go up against. In all cases you were governed by the costs of your competitors. In other words, we could turn out the kind of finish they demanded for 25c a piece, but our competitors were turning it out for 10c a piece. Why the difference? Because they were asking for a five wheel job of polishing when the competitor was doing one and two. Yet the customer can not see that difference. So it was a case of finding some method to do this.

Now, in hammering down the 53 per cent to 5 per cent not loading up with what I term excess supervision, we had to find some way to put in that quality bonus. In all cases, if you time study a job, and it takes a man one hour to turn out one hundred pieces, you can't put a rate on it of one hour. That is his top speed. What do you put on? If you want that man to make 150 per cent you put an hour and a half's time on that. That is common practice in rate setting. If you want him to make 35 per cent, you put 1 35/100 hours on that job. Now what is that? That is the incentive which you have set up for him to make. Then, if he will better that, if he will turn out 110 pieces where he has been turning out 100 in that hour, his percentage will grow from 135 per cent to 145 per cent. That is the thing we are trying to get over to those men; that is the thing we are trying to appeal to them for.

Now I have been in a good many plants in the United States. As a matter of fact, my company, for the past seven years, has permitted me to spend approximately two months out of the year traveling over this country. I have been in the large plants and the small ones.

I asked Mr. Matthes to give this paper here as I thought it would be a help to the electroplaters in helping to standardize, helping to obtain those lower costs that every one of our employers are asking for, and I ask that he receive the courtesy due him.

HARTFORD-CONNECTICUT VALLEY BRANCH

The Hartford-Connecticut Valley Branch held its regular monthly meeting on Monday evening, Sept. 23, at the Hartford Chamber of Commerce, Hartford, Conn.

The meeting was called to order at 8:15 p. m. with President Beloin in the chair. All communications were read and accepted, and all bills were ordered paid.

Mr. W. J. R. Kennedy gave a very interesting talk on what happened at the Detroit convention. His talk was certainly interesting and appreciated.

Mr. R. J. O'Connor, Chairman of the Research Committee, gave a very interesting talk on what the Research Committee intends to do in the coming year. He gave a very interesting talk, and many of the members have a much clearer understanding of just what has been done, and is being done, at the Bureau of Standards. It is hoped that every member will give the Research Committee their hearty support in their campaign. Mr. O'Connor was given a hearty vote of thanks for his very interesting talk.

The meeting was attended by twenty-seven members and visitors, and was adjourned at 10:30 p. m. V. E. GRANT, Secretary.

PITTSBURGH BRANCH

Our regular meeting of October 4th was held in the new Keystone Club, Pittsburgh, Pa., and was the first of several meetings planned for the fall and winter. We had our old friend George Hogaboom as our speaker and instead of a given subject, he conducted his now famous question box, and he sure knows how to get the boys on edge. We needed someone to take down all the information that was given, but as we had no one present who could take any of it down, everyone will have to remember the answers to the questions. This meeting was one that the platers will remember, it was attended by about 35, all interested in the progress of electro-plating, and as a result, we received three new applications, and expect more, as a result of the interest taken at the meeting. After Mr. Hogaboom finished his program the committee presented a very fine buffet lunch as a suprise for the evening. This was enjoyed by everyone, and someone mentioned the next convention to be held in Washington, D. C., and Mr. Wilfred S. McKeon, an ardent flier, addressed the boys upon the possibility of the boys flying to the convention, and from the interest in the question, Washington will see about every member of the Pittsburgh branch arrive via the air. We will be only an hour and a half on the way, and ought to make things lively after we get there. All meetings for the fall and winter season 1929-1930 will be held on the first Friday evening of each month.

Pittsburgh News

A recent fall meeting of the American Electro Chem. Society was held at Pittsburgh, Pa., Sept. 19, 20 and 21.

Dr. A. B. Sanigar of England has been appointed to the Weston Fellowship of American Electro Chemical Society and his work is to be done at Columbia University on silver plating. Quite a compliment to the plating industry.

S. E. HEDDEN, Secretary.

PROVIDENCE-ATTLEBORO BRANCH

Meeting of Sept. 19: The meeting was called to order by the president, Mr. Chace, and after the reading and approval of the minutes of previous meeting, Dr. Stradian was requested to relate from his experience at the convention. In complying, the Doctor told about a side trip that he and Ernest Alsfeld took to several of the plants around Detroit, in order to see some of the "big works" and just how they did it, i. e., chromium plating. So in one plant they found some very nice work, about 100 per cent, and in another, on inspecting some of the pieces, they looked like they do at home, sometimes. They also called on the Burroughs Adding Machine Co. and stayed several hours. There they witnessed the cadmium plating of the entire working of an adding machine in one unit, and the parts seemed to be completely covered for rust protection.

John Garrick opened the question period by asking what caused small pieces of hollow wire, that had been electro plated in 14-K. gold and were apparently all right, to later show up little black specks.

It was suggested that in drawing the tubing the drawing tools may not have been in proper condition and consequently may have left numerous small pitholes. Suggested to examine pieces with a microscope; also suggested to give them a final rinse in muriatic acid pickle before electro plating.

Meeting adjourned at 10:30. JOHN ANDREWS, Secretary.

CLEVELAND BRANCH

Cleveland Branch had a fine meeting October 5, quite a number of old timers being present. As our subject for the evening was "Scientific Control," they came around to see what the young blood was doing and found that they are not afraid to tackle the job of devising a simple method of scientific control for all solutions and every ingredient that is necessary to control. We think we have a very interesting program laid out that will last some time and as everyone seems to be interested some good results are expected.

H. J. TERDOEST, Secretary.

PHILADELPHIA BRANCH

Philadelphia Branch held their October meeting with a large attendance and President Scott in the chair.

One applicant was elected to membership.

Educational Committee reported good attendance at the chemistry classes and appealed to the members who have not as yet joined the class to enroll.

Banquet Committee reported that a big time at our annual banquet, November 23, is sure.

Mr. W. A. Reynolds gave an interesting talk on abrasives, showing samples of various species. Mr. Reynolds' talk was appreciated by those present and was given the usual vote of thanks.

ANNUAL BANQUET
of
PHILADELPHIA BRANCH
will be held
November 23, 1811-13 Spring Garden Street
Educational Session 3 P. M. Good Speakers
Banquet 7 P. M. $4.00 Per Plate
PHILIP UHL, Secretary-Treasurer.

ROCHESTER BRANCH

On Friday evening, September 27, Rochester Branch held their monthly meeting at Powers hotel.

President Reama opened the meeting and introduced Mr. Horace H. Smith who told the members what the Society expected to do this

year. He urged every member to do something for the benefit of our Society this year.

Dr. Harold Works was the next speaker and his talk on nickel, zinc and chrominum plating on aluminum was sure a treat. Dr. Works was given a rising vote of thanks.

Dr. E. B. Sanigar of Sheffield, England, who was awarded the Weston Fellowship of the American Electro Chemical Society and who is studying silver plating at Columbia University was the next speaker. He told the boys how plating is done in England.

Mr. Frank C. Mesle, Mr. S. P. Gartland and Mr. Frank Kolb gave short talks.

Next on the program was Mr. George B. Hogaboom and his well-known question box which every plater knows is always interesting.

It was decided to hold our October meeting at Syracuse, N. Y., on Saturday, October 26, at which time Mr. Frank C. Mesle will give a talk on silver plating. This will be an open meeting and Syracuse members are urged to make it a success.

On Saturday, September 28, Rochester Branch and their families and friends held their annual outing and clam bake at the old homestead on Irondequoit Bay. There were games and sports for all, but the feature was a ball game between President Reama's Red Wings and Vice-President Hart's Colts. Reama's team won due to the work of catcher Judson Elster and the fast work of Chas. Hehr on third base. Wm. Hart's pitching and Eli Beaudry on second base for the losers are worthy of special mention. The work of the umpire was very satisfactory.

The Melody Boys' Orchestra played for the dinner and dancing.

Mr. Horace H. Smith gave the prizes to the winners of the sports.

The committee who were in charge are to be congratulated on their fine work, and those who missed the meeting and outing missed one of the best times Rochester Branch has had in a long time. The committee in charge were: Chairman Gerald A. Lux, Clarence O. Fields, William Hart and Frank Mesek.

CHAS. GRIFFIN, Secretary.

TORONTO BRANCH

The Toronto Branch held their first meeting of the fall and winter session Monday, September 23, in the Canadian Foresters Hall, President J. Walker presiding. As we had not met since June we had a very nice reunion.

Our two delegates to the convention, Mr. W. Barrows and Mr. J. Walker, had a very fine report ready on the Detroit convention, and it was read by Mr. Barrows.

Following the regular business routine the meeting was adjourned at 10:40 p. m. until October 29.

H. W. GRAHAM, Secretary-Treasurer.

A. E. S. PAGE

Assembled Expert Scraps With and Without Significance

Remember When—

Young people went to bed before their parents.

"Whoa" and "Giddap" were the only stop and go signals of city traffic.

Men wore rubber collars and when they became soiled they would clean them with a damp cloth.

Typewriterless offices used to advertise for help "with a good handwriting."

You could get a dish of ice cream and a bowl of cookies for a nickel.

He that is all "I's . . ." can't see beyond his "KNOWS . . .!"

Years ago some of the wise granddads said everything had been invented that could be invented.

Children were plentiful and many families had their own baseball teams, meeting other family teams.

Every first class barber shop had bathrooms and Saturday afternoon we went there, took our bath, and had a shave and haircut, all for 55 cents.

What Did He Mean?

A gentleman of a very excitable and emotional nature had the misfortune to lose his third wife. He took the affliction very much to heart and fainted at the grave.

His friends were fearful for his life. Among them was a German who spoke English brokenly.

He stooped down and felt the gentleman's pulse, and looking up said: "He's all right, he'll re-wive."

—Mrs. George H. Hilge.

Bombs were thrown only by anarchists.

This Is Funny

One day two Englishmen and an Irishman were working on a road. As the day grew warmer, Pat the Irishman took his coat off, and hung it on some bushes. When he wasn't looking the Englishmen drew a donkey's head on the coat. In the evening when the men were ready to go home, the Englishmen stood near by to see what Pat would say about the coat.

"Well," said Pat, "which one of you guys wiped his face on me coat?"

—Emil Zurian.

BALTIMORE-WASHINGTON BRANCH

The regular monthly meeting of the above branch was held October 5 in the Enoch Tratt Library, Calhoun and Hollins street, Baltimore, President M. J. Kraft presiding.

Dr. Blum gave us a review of the lesson we had at the Bureau of Standards September 28, after which we proceeded with the regular business. Communications were read.

Moved and seconded and carried this branch donate $50.00 per year for three years to the Research Committee.

We discussed the forthcoming convention, also annual banquet, to be held in Washington, D. C. Dr. Blum suggested the Executive Committee act as Convention Committee, also elect committee for annual banquet.

Executive Committee meets at Mr. Pierdon's office, 925 E. St. N. W. Washington, at 4 p. m. October 26th.

One application was received.

Twenty-four members and friends attended.

GEO. F. P. TURNER, Secretary.

CHICAGO BRANCH

Regular monthly meeting of Chicago Branch A. E. S. held Saturday, October 12, at the Atlantic hotel.

Meeting was called to order with President S. J. C. Trapp presiding and all officers present.

With the cooler weather coming on the attendance is getting better, and that should remind us of one of the great events of Chicago Branch, the annual banquet. Mr. Sam Huenerfauth was appointed chairman with power to select his own committee.

Mr. H. Faint read and discussed the article on corrosion of chrominum plate, by Mr. C. F. Nixon, in the Monthly Review.

This proved to be very interesting and should be of value to all platers doing chrome.

The Librarian found the following questions in the question box:

Questions and Answers

Ques. No. 1. What is a best cleaner, before chrome plate, for steel parts, heavy nickel plated and buffed and colored? Should electric current be used or not?

Ans. No. 1. It is not necessary to clean work in electro-cleaner but the work should be color buffed. If an electro-cleaner is used, keep at a temperature of 175° F.

Ques. No. 2. Will a nickel anode dissolve in a cyanide soln. wash to brighten cadmium deposit, using anode instead of adding nickel cyanide?

Ans. No. 2. Nickel anodes do not dissolve in cyanide baths.

Ques. No. 3. How is the color green, blue, purple and yellow plated on aluminum sheet?

Ans. No. 3. Unanswered. Platers please help.

Meeting adjourned at 10:30 p. m.

J. C. KRETSCHMER, Secretary-Treasurer.

NEWARK BRANCH

The Newark Branch held is regular meeting and had a very interesting and important talk on carborundum. Mr. Bannen, the man who gave the talk, was very interesting throughout. Mr. Smith, who returned from visiting the Rochester Branch, was very grateful in the way which he was received.

GEO. REUTER, Secretary.

BRIDGEPORT BRANCH

Meeting opened at 8:30 o'clock with President Wagstaff presiding. The roll call of officers was read; one officer was absent. It was voted on to have the editor send a copy of the Review each month to the Bridgeport Public Library.

It was voted on to have an annual Old Timers Night, Friday, November 8, 1929, at the Contract Plating Co. We are planning to have a real time. For the speakers committee, we are having Mr. Chamberlain, chairman, Mr. J. C. Obermuler and Mr. Duncomb.

We wish to thank the effort of Mr. Tallon and Mr. O'Connor for having the Chamber of Commerce donating one night a month, for us to hold a meeting in their rooms at the Stratfield Hotel. And boys, they are some rooms, so you ought to try and get down to see these rooms.

Secretary was instructed to send out cards informing the members of the Manufacturers' Exhibit Oct. 17-18-19. The discussion for the evening was putting copper over nickel, that is a copper sulphate dip. Members did not know of any such process. Meeting closed at 10:30 o'clock.

WM. H. EHRENCRONA, Secretary-Treasurer.

LOS ANGELES BRANCH

To celebrate the granting of a Permanent Charter from the Supreme Society, instead of the regular routine meeting, a Smoker was held, to which were invited employers and their representatives so we could tell them of the object and aim of the Society, so as to insure co-operation in the future.

At 6:30 p. m. some one hundred and ten sat down to an especially prepared dinner (see specifications for a Platers' dinner) after which a short business session was held.

President C. E. Thornton then turned the meeting over to the Chairman of the Entertainment Committee, Frank C. Rushton, who gave an address on the object of the Society, etc., after which papers were read by the following members:

Joseph Corbit, "More Perfect Metal Products," by Dr. Watts. Review, May, 1928. Joe had worked on another paper but Dr. Watts' paper is so good it was read, for the benefit of the new members.

E. D. Bedwell, "Some Observations on Chromium Plating." Mr.

Bedwell's paper was in such demand after the meeting, that he received some fifteen requests for copies of same.

M. D. Rynkofs, "Whither Are We Drifting."

Geo. Kyle, "Motion Plating." Mr. Kyle compared Motion Plating with the Movie Stars in L. A.

Benj. Foss, "Aluminum and Chrome."

P. A. Boeck, "Testing Solutions." Mr. Boeck gave a black board illustration, which was very complete and proved of great value to all present.

A little entertainment and music was provided between papers; this helped to make the evening pass pleasantly. Pres. Thornton gave a short closing address and at 10:30 p. m. "Auld Lang Syne" was sung and the meeting adjourned for usual "Street Corner Discussion." In fact, one member arrived home at 4:00 a. m. and his wife swears she is coming to the next meeting and find out what the attraction is.

J. Jacques, Sergeant at Arms, had a delegation from Ontario, Calif. Alhambra, Pasadena, Santa Anna, Santa Barbara, and San Francisco were represented.

M. D. RYNKOFS, Secretary-Treasurer.

GRAND RAPIDS BRANCH

The Grand Rapids Branch held its regular meeting in its new place, which is at the office of J. C. Miller Supply Co. Mr. Miller has generously offered us his place of business to hold our meetings in the future.

The first meeting in our new quarters was a grand success as we had with us the old war horse, Mr. Fred Liscomb, who gave us a very interesting talk and showed several slides on Anodes. Those who did not attend missed a very interesting meeting.

We also have Mr. Liscomb's promise to be with us at our next meeting when he will conduct a Question Box, which is so popular with most of the branches.

We will also hear a talk on Chromium Plating by Mr. Earl Stadel who has had a lot of experience in Chrome Plating Bumper Bars for the Wolverine Bumper Co. of Grand Rapids. We would urge all members to attend these meetings in the future as Mr. Miller has promised to put in a laboratory for our use if we show an interest in attendance

J. VAN DYKE, Secretary-Treasurer.

NEW YORK BRANCH

The regular monthly meeting of the New York Branch was held in the World Building, Park Row, New York City, on October 11, 1929.

The meeting was called to order by Pres. F. Hanshatter at 8:30 o'clock. All officers were present and the minutes of the previous meeting were approved as read. Due to this being an educational meet-

ing, the President gave the chair to the Librarian, H. Levine, who in turn called upon our distinguished member, Dr. Pan, who gave a lecture on lead anodes in a chromium bath which was very interesting to all the members of our branch and the large delegation from Newark Branch which was headed by our Supreme President, H. Smith.

At the conclusion of Dr. Pan's lecture, President F. Haushalter called upon Past President F. MacStocker for a few remarks. Brother MacStocker responded by telling of the wonderful work Dr. Pan was doing and the great help he was giving the members of the New York Branch, and he then informed Dr. Pan that the members of the branch, to show their appreciation of his effotrs in their behalf, they had elected him an honorary member of the New York Branch of the A. E. S., and he was also presented with a gold medallion with the design of A. E. S.

Dr. Pan thanked the members for their kindness and said he would be very glad to be of whatever help he could to the members of all the branches of the A. E. S.

The meeting was duly adjourned at 11 o'clock by the President, and then the members and visitors partook of refreshments and a good time was had by all.

CHAS. HAUSHALTER, Recording Secy.

NEW TREATMENT FOR GALVANIZED METAL SUCCESS

Liquid Adds to Life and Acts as Sizing

Assurance of longer life for galvanized surfaces, such as sheeting, guttering, downspouts, air ducts, roofing, siding, fencing, screens and nails, is a subject in which home builders are vitally interested.

There is now manufactured a gun metal liquid which protects galvanized metal from the ravages of acids, smoke, brine, and greases. It is no longer an experiment but is now placed on the market after many years of research work and many practical field demonstrations.

Has Three Definite Uses

This liquid solution of a metallic compound unites with galvanizing and forms an additional metallic coating. It has three definite uses:

1. It extends the life of metal by protection against ravages of gases, acids, smoke, and brine.

2. It acts as a sizing which holds paint and paste tenaciously.

3. It permits the immediate use of new galvanized metal which is to be painted without resorting to the expensive process of aging stock before using.

Not only does this liquid produce an excellent finish by changing the glare of galvanized metal to a gun metal appearance, but it is an economical preservative. When applied by the brush or by the dipping method, it is claimed that one gallon will cover in excess of 1,500 square

feet of surface, more than twice the surface covered usually by one gallon of ordinary paint.

May Be Dipped or Painted

This liquid can be applied in any temperature for the union between it and galvanized surfaces is accomplished without the use of any external heat. A material to be treated may be dipped in this liquid or the liquid can be applied like an ordinary paint.

Ordinarily the dipping method is used for fencing sheets, bolts and nuts, nails, screen wire and the like. The brush application is used after the galvanized materials are in place.

APPLICATIONS

	Branch
M. Peter Balick of Westfield, Mass.	Hart.-Con. Valley
Jos. H. Toeffer, 1910 Maypole Ave., Chicago, Ill.	Chicago
H. E. Wall, 1940 Lombard Ave., Berwyn, Ill.	Chicago
Henry Hagen, 111 Cottage Ave.	Chicago
Carl C. Nagel, 216 8th St., Rockford, Ill.	Chicago
B. M. Griffith, 1601 Reedsdale St., Pittsburgh, Pa.	Pittsburgh
H. J. Burz, 7109 Upland St., Homewood, Pittsburgh, Pa.	Pittsburgh
M. J. Stutzman, 2801 Preble Ave., Pittsburgh, Pa.	Pittsburgh
M. Thos. Keating, 53 Ellington St., E. Orange, N. J.	Newark
Albert Edward Johnson, 100 Chestnut St., E. Orange, N. J.	Newark
B. R. Rowe, 501 Park Ave., E. Orange, N. J.	Newark
Robt. W. Shell, 322 Harwood, Santa Anna, Calif.	Los Angeles
Harry Marmer, 1906 W. 41st St., Los Angeles, Calif.	Los Angeles
Carl F. Weber, 505 E. 1st St., Ontario, Calif.	Los Angeles
E. H. Pangborn, 214 Curtis St., Alhambra, Calif.	Los Angeles
F. W. Hyde, 2126 S. Main St., Los Angeles, Calif.	Los Angeles

ELECTIONS

	Branch
Rene Grauer, Paris, France	Philadelphia
W. R. Kritlow, 3324 N. Neva Ave., Chicago, Ill.	Chicago
H. Treeting, % Secretary	Newark
Austin Schasty, % Secretary	Newark
Fred Olsen, % Secretary	Newark
M. Buff, % Secretary	Newark
Wm. N. Tirane, % Secretary	Newark
David Durin, % Secretary	Newark
Ed. T. Berry, 514 Plaza Bldg., Pittsburgh, Pa.	Pittsburgh
Wm. F. Cahill, 75 South St., Woonsocket, R. I.	Prov.-Attleboro
Geo. Begam	Bridgeport
Chas. R. Percival	Bridgeport

SUSPENSION

	Branch
L. V. Brown, Gary, Ind.	Chicago

BALTIMORE-WASHINGTON

Meets in Enoch Pratt Library, Calhoun and Hollins Sts. Geo. F. Turner, Secretary, 5324 Maple Ave., Pimlico, Baltimore, Md.

BOSTON

Platers' Supply Co., American House, Boston, Mass. Second Friday each month. Secretary, A. W. Garrett, 45 King St., Dorchester, Mass.

BRIDGEPORT

Meets first and third Friday of each month at 62 Cannon St., Room 17, Bridgeport, Conn. Secretary, Wm. Ehrencrona, Box 301, R. F. D. No. 1. Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., Atlantic Hotel, 316 S. Clark St. Secretary, J. C. Kretschmer, 1914 Warner Ave.

CINCINNATI

Meets every Thursday, 7:30 p. m., at Vocational Training School, Spring and Liberty St. Secretary, Al. Yeager, 2021 Sherman Ave., Norwood, Ohio.

CLEVELAND

Meets first Saturday of each month at Hotel Winton. H. Terdoest, 380 Pioneer Ave., Akron, Ohio.

HARTFORD-CONN. VALLEY

Meets fourth Monday in each month alternately at 266 Pearl St., Hartford, Conn., and corner Broadway and Worthington St., Springfield. Secretary, Vernon Grant, 43 Putnam St., Bristol, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, Robert G. Suman, 2734 Ridge Road, Dayton, Ohio.

DETROIT

Meets the first Friday of each month at the Hotel Statler, Louis II Room, Detroit. Secretary, Chas. Phillips, 13421 Camden Ave., Detroit, Mich.

GRAND RAPIDS

Meets on the second Friday of each month at 528 Lake Michigan Drive, N. W. Secretary, Jacob Van Dyke, 1361 Union Ave., N. E., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

LOS ANGELES

Secretary, M. D. Rynkofs, 1354 W. 25th St., Los Angeles, Calif.

MILWAUKEE

Meets second and fourth Thursdays of each month at Cor. 3rd St. and Highland Ave. J. N. Hock, 1229 W. 24th St., Milwaukee, Wis.

MONTREAL

Meets last Friday of month at Office of Secretary, John H. Feelay, 411 Aylmer St., Montreal, Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at Franklin Hall, 41 Franklin St., Newark, N. J., at 8 p. m. Secretary-Treasurer, Geo. Rueter, P. O. Box 201, Newark, N. J.

NEW YORK

Meets every second and fourth Fridays of each month in the World Building, Park Row, New York City, N. Y. Secretary-Treasurer, J. E. Sterling, 2581 46th St., Astoria, L. I.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Friday of each month at 8 p. m., at downtown branch, Y. M. C. A. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 44 Washington St., Prov. Engineers Rooms, Providence, R. I. Secretary, J. H. Andrews, 19 Rosedale St., Providence, R. I.

ROCHESTER

Meets every third Friday of each month at the Powers Hotel. Secretary, Chas. Griffin, 24 Garson Ave., Rochester, N. Y.

ST. LOUIS

Meets second Friday of each month at Central Y. M. C. A., 16th and Locust St. Secretary, C. T. McGinley, 8214 Fairham Ave., University City, Mo.

TOLEDO

Meets first Thursday of each month at Toledo Secor Hotel, corner Cherry and Page Sts. Secretary, W. W. Welker, 2228 Middlesex Rd., Route 2, Box 635, Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Secretary, H. W. Graham, 102 Robina Ave., Toronto, Canada.

WATERBURY

Meets every second and fourth Thursday of each month. Secretary, Wm. F. Guilfoile, Garden Theatre Bldg., East Main St., Waterbury, Conn.

WORCESTER

Meets Directors' Room, Chamber of Commerce, Worcester, Mass.

1928-1929

Roger H. Bryant, Secretary, 94 Grove St., Worcester, Mass.